



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/564,294	01/10/2006	Adrianus Johannes Stephanes Maria De Vaan	NL 030826	7979
24737 7590 07/25/2007 PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510			EXAMINER LOVELL, LEAH S	
			ART UNIT 2885	PAPER NUMBER
			MAIL DATE 07/25/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/564,294

Applicant(s)

DE VAAN, ADRIANUS JOHANNES  
STEPHANES MA

Examiner

Leah S. Lovell

Art Unit

2885

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 28 December 2006.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities:
  - On page 6, line 8, it is suggested that "103" be added after "first angular interval" (and all other instances).
  - On page 6, line 11, it is suggested that "105" be added after "second angular interval" (and all other instances).
  - On page 7 lines 16 and 22, it is suggested that "a second light refracting structure 611" be replaced "a second prism structure 611" to mimic the other instances of that reference numeral in the paragraph.
2. Appropriate correction is required.
3. While the Examiner acknowledges that headings are not specifically required by the MPEP, Applicant is encouraged to provide headings for clarity and order of the specification. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.

Art Unit: 2885

(f) BACKGROUND OF THE INVENTION.

(1) Field of the Invention.

(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(g) BRIEF SUMMARY OF THE INVENTION.

(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(i) DETAILED DESCRIPTION OF THE INVENTION.

(j) CLAIM OR CLAIMS (commencing on a separate sheet).

(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

4. The abstract of the disclosure is objected to because in accordance with 37 CFR 1.72(b) the abstract must be presented on a separate sheet. The rule specifically states, "the sheet or sheets presenting the abstract may not include other parts of the application or other material." Therefore, the WO information currently present on the abstract sheet needs to be removed. Correction is required. See MPEP § 608.01(b).

***Claim Objections***

5. Claims 1-6 are objected to because of the following informalities:

- In claim 1, on lines 10-11 of the claim, "in which first light refractive structure (306)" is an incomplete sentence and should be corrected. It is suggested that Applicant considers "wherein the first light refractive structure (306) comprises" as an alternative. For the purposes of this office action, the phrase "in which first light refractive structure (306)" will be considered to be "in which first light refractive structure (306) has."

- Applicant is reminded that “can be,” as present in claims 1 and 6, is functional language. It is suggested that applicant considers replacing these functional phrases with a positive limitation.
  - Claims 2-6 are objected to as introducing “new” reference numerals (i.e. those different to claim 1). While it is understood that the dependent claims represent different embodiments which are defined in the specification, for the purposes of the claim language, it is suggested that either:
    - Claim 1 be amended to include all reference numerals used in claims 2-6 in addition to those currently present (e.g. currently it reads “a light source (301)” —amend it to “a light source (301, 701’, 701”, 701’”)”); or
    - Change the reference numerals in claims 2-6 to correspond to those in claim 1; or
    - Eliminate the reference numerals from all claims.
  - Claim 6 is objected to because on line 6 of the claim “is” should be removed.
6. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 2885

8. Claims 1, 3, 4, 7, 10 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Gotoh et al. (US 7,073,933).

Regarding claim 1, Gotoh discloses an illumination system comprising a light guide [10] having an entrance face [12], an exit face [16] and an aperture [figure 1A, the area of the entrance face not having the reflector 48] in which a light source [22] can be arranged [figure 1A], the system being characterized in that it comprises:

a light reflective structure [48] arranged in proximity to the light guide entrance face [figure 1A], the light reflective structure being arranged with an aperture in which the light source can be fitted [figure 1A]; and

a first light refractive structure [20] arranged in proximity to the light guide exit face [figure 1B], in which first light refractive structure:

at least a subset of light beams [62] of a first angular interval with respect to the optical axis of the system is refracted to illuminate the light guide exit face [figure 1B; when the light beam transfers from the light guide to the structure, the beam will be refracted due to the different refractive index of the two parts], and

at least a subset of light beams [60] of a second angular interval with respect to said optical axis is reflected to be recycled in the light guide [figure 1B].

Regarding claim 3, Gotoh discloses a reflective polarizer [20] arranged in proximity to the light guide exit face to transmit light beams of a first polarization mode and reflect light beam of a second polarization mode [figure 1B; column 14, lines 30-37].

In regard to claim 4, Gotoh discloses a polarization converting element [19] arranged in the light guide to alter the polarization mode of light beams incident on said polarization converting element [figure 1B].

Regarding claim 7, Gotoh discloses the light source as a LED [abstract].

Regarding claim 10, Gotoh discloses a display system [figure 1B] comprising the illumination system in claim 1.

Regarding claim 12, Gotoh discloses a direct view LCD system comprising the illumination system of claim 1 [figure 1B].

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gotoh et al. (US 7,073,933).

In regard to claim 2, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide diffusion means (via either light-scattering means implanted within the light guide itself or on a surface of the light guide) between the light reflecting structure and the first light refractive structure. One would have been

motivated to do so because it is well known in the art to use additional diffusion means in combination with a light guide to ensure even and maximum brightness.

In regard to claims 8 and 9, Gotoh does not directly disclose the use of a laser or gas discharge lamp. Gotoh does indicate that the light source is a "point source of light" [column 6, lines 39-40]. It is well known in the art that both a laser and a gas discharge lamp satisfy the requirement of being a point source. It would have been obvious to one of ordinary skill in the art at the time of the invention to use either a laser or gas discharge lamp in place of the LED disclosed by Gotoh. One would be motivated to do so based on the availability of point sources at the time of manufacture since both would not compromise the integrity of the invention.

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gotoh et al. (US 7,073,933) as applied to claim 1 above, and further in view of Ehara et al. (US 6,601,962).

Regarding claim 5, Gotoh does not disclose a second light refracting structure. Ehara discloses a refractor [11] on the entrance face of a light guide panel [12] in combination with an LED [2]. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide additional refractive means, like Ehara, on the entrance surface of the light guide plate of Gotoh. One would be motivated to do so because the second refractive surface would ensure that the light emitted from the LED of Gotoh would be evenly and widely distributed within the light guide.



12. Claims 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gotoh et al. (US 7,073,933) as applied to claim 1 above, and further in view of Yokoyama (US 6,547,400).

In regard to claims 6 and 11, Gotoh discloses the claimed invention as indicated above. Gotoh also discloses a plurality of apertures for a plurality of light sources, however, Gotoh does not disclose dichroic coatings for each light source. Yokoyama discloses a similar device in that there is a light guide [41] having a plurality of light sources [100] optically connected to an LCD arrangement [30]. In figure 5 of Yokoyama, it is depicted that the individual light sources [100] are each colored to red, green, and blue. In the quarter of the light guide [41] not having an adjacent light source arrangement, the three colors combine to create one multi-colored image, which is then projected onto a screen. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the dichroic filters of Yokoyama in the arrangement of Gotoh along with multicolored LEDs. One would be motivated to do so because Yokoyama teaches that the three colors successfully combine to create one sharp, bright image. It also would have been obvious to one of ordinary skill in the art at the time of the invention to use the light guides of Gotoh in a projector system, like that of Yokoyama. One would have been motivated to do so because Yokoyama discloses that liquid crystal displays can be successfully utilized as projection devices. Also projection systems are highly desirable in the art to project larger images without the confines of a traditional LCD screen.

***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Bond et al. (US 4,975,808)
- Osawa et al. (US 5,769,521)
- Miyazaki (US 6,065,845)
- Satoh et al. (US 6,139,163)
- Chuang (US 6,508,571)
- Hayashi et al. (US 6,840,647)


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leah S. Lovell whose telephone number is (571) 272-2719. The examiner can normally be reached on Monday through Friday 7:45 a.m. until 4:15 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2885

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leah Lovell  
Examiner  
18 July 2007

  
ISMAEL NEGRON  
Patent Examiner  
Art Unit 2885